

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : **BOX PATENT APPLICATION**

Blaise DIDILLON et al. : Examiner: Unassigned

Serial No.: Unassigned : Group Art Unit: Unassigned

Filed: June 29, 2001 :

For: **PROCESS FOR CAPTURING MERCURY AND ARSENIC COMPRISING EVAPORATION THEN CONDENSATION OF A HYDROCARBON-CONTAINING CUT**

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination, Applicants wish to amend the above-identified application as indicated below:

**IN THE ABSTRACT**

Please delete the existing Abstract and replace with the attached new Abstract of the Disclosure.

**IN THE CLAIMS**

Please cancel claims 1-12 without prejudice or disclaimer.

Please add the following claims:

- 13. A process for capturing mercury and optionally arsenic from a hydrocarbon-containing initial feed comprising sludge, said sludge comprising organometallic mercury compounds, said process comprising:
  - (a1) vaporizing said hydrocarbon-containing initial feed, thereby partially decomposing the organometallic mercury compounds leaving a solid sludge having a reduced content of mercury compared to the initial feed;

(a2) condensing the resultant vaporized hydrocarbon-containing feed substantially totally to obtain a condensate containing a higher concentration of mercury than said initial feed, steps (a1) and (a2) being conducted without fractional distillation of the initial feed;

(b) contacting resultant condensate from step (a2), with hydrogen and a catalyst so as to at least partially decompose residual organometallic compounds into mercury; and

(c) passing resultant hydrogen-treated condensate from step (b) over a mercury capture mass to remove mercury from said resultant hydrogen-treated condensate.

14. A process according to claim 13, wherein step (a1) is operated at a temperature in the range from the temperature of the end point of the feed reduced by 20°C to the temperature of the end point of the feed increased by 20°C, and at a pressure in the range 0.1 to 5 MPa.

15. A process according to claim 14, wherein step (a2) is operated at a temperature that is lower than that of step (a1) and in the range -10°C to 500°C, and at a pressure in the range 0.1 to 5 MPa.

16. A process according to claim 15, wherein step (b) is operated at a temperature in the range 130°C to 250°C, a pressure in the range 0.1 to 5 MPa and at a hydrogen flow rate in the range 1 to 500 h<sup>-1</sup>.

17. A process according to claim 16, wherein step (c) is operated at a temperature in the range 0°C to 175°C, a pressure in the range 0.1 to 5 MPa, and at a space velocity in the range 1 to 50 h<sup>-1</sup>.

18. A process according to claim 13, wherein the catalyst comprises sulphided nickel, said catalyst being also capable of capturing arsenic.

19. A process according to claim 13, wherein the catalyst comprises at least one metal selected from the group consisting of nickel, cobalt, iron and palladium, and wherein at least 50% of said metal is in the reduced state.

20. A process according to claim 19, wherein the catalyst comprises a support selected from the group consisting of alumina, silica, silica-aluminas, zeolites, activated charcoal, clays and aluminous cements.

21. A process according to claim 13, wherein the capture mass contains sulphur and a metal at least partially in the form of a sulphide.

22. A process according to claim 21, in which the metal is selected from the group consisting of copper, iron and silver.

23. A process according to claim 21, wherein the quantity of metal combined or otherwise in the form of the sulphide is in the range 0.1% by weight to 20% by weight with respect to the total weight of the capture mass, and the quantity of elemental sulphur, combined or otherwise, of said mass is in the range of 1% by weight to 40% by weight.

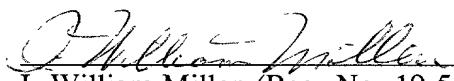
24. A process according to claim 23, wherein the capture mass also comprises a support selected from the group consisting of silica, alumina, silica-aluminas, zeolites, clays, activated charcoal and aluminous cements. --

#### **REMARKS**

New claims 13-24 substantially mirror original claims 3-12, but without multiple dependencies, thereby facilitating examination and saving fees. Applicants reserve the right, however, to reintroduce claims directed to canceled combined subject matter. Note also that the redundant expression “at least” does not appear after “comprising” in new claim 13, as it was in claim 1.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made**".

Respectfully submitted,



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## ABSTRACT OF THE DISCLOSURE

A process for capturing mercury and possibly arsenic comprising at least:

- a) vaporising (or flashing, step a1) then condensing a hydrocarbon-containing feed (step a2) without separating said feed;
- b) treating the effluent from step a2 comprising at least one step for bringing said effluent into contact with hydrogen and a catalyst, and optionally capturing arsenic;
- c) a step consisting in passing the effluent from step b) over a mercury capture mass.

## **Version With Markings To Show Changes Made**

## IN THE ABSTRACT

The abstract has been replaced with the attached new Abstract of the Disclosure, therefore no marked-up version is necessary.

## IN THE CLAIMS

Claims 1-12 have been deleted.

Claims 13-24 have been added.